

Application No.: 10/791,696**Docket No.: 2336-250****AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. **(currently amended)** An optical attenuator which adjusts a transmission amount of an optical signal inputted through an optical signal transmission line and outputs the optical signal, comprising:

a silicon layer provided with a waveguide for transmitting the optical signal from the optical signal transmission line and an ~~actuator~~ actuator formed at a predetermined portion thereof;

a bonding medium layer provided with a cavity into which the waveguide is inserted, the bonding medium layer being bonded at a waveguide-formed face of the silicon layer; and

a support layer attached to the bonding medium layer at an opposite face to a face where the bonding medium layer is bonded with a silicon substrate.

2. (original) The optical attenuator according to claim 1, wherein the bonding medium layer is formed of a polymer having a high light transmission.

3. (original) The optical attenuator according to claim 2, wherein the bonding medium layer is formed of polydimethylsiloxane (PDMS).

4. (original) The optical attenuator according to claim 1, wherein the support layer is made of glass.

5. (original) The optical attenuator according to claim 1, wherein the cavity into

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which the waveguide is inserted has a width and a depth substantially same as those of the waveguide.

6. (original) The optical attenuator according to claim 1, wherein the actuator formed in the silicon layer is a microelectromechanical system (MEMS) actuator which is movable in a horizontal direction depending on an application of a voltage.

7. (original) The optical attenuator according to claim 6, wherein the MEMS actuator is a comb type actuator.

8-14. (canceled)

15. (new) An optical attenuator for attenuating an optical signal being transmitted from a first optical signal transmission line to a second optical signal transmission line, said attenuator comprising:

a moveable waveguide moveably disposed between the first and second optical signal transmission lines for transmitting the optical signal from the first to the second optical signal transmission lines;

a silicon layer carrying said moveable waveguide on a surface thereof;

a bonding medium layer having opposite first and second sides, said bonding medium layer having, on the first side, a cavity in which the moveable waveguide is received, the first side of the bonding medium layer being bonded to the surface of the silicon layer that carries said moveable waveguide;

a support layer attached to the second side of the bonding medium layer; and

an actuator formed in a predetermined region of the silicon layer for moving the moveable waveguide relative to the first and second optical signal transmission lines so as to attenuate the optical signal being transmitted.

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16. **(new)** The optical attenuator according to claim 15, wherein the bonding medium layer is formed of a polymer having a high light transmission.

17. **(new)** The optical attenuator according to claim 16, wherein the bonding medium layer is formed of polydimethylsiloxane (PDMS).

18. **(new)** The optical attenuator according to claim 16, wherein the support layer is made of glass.

19. **(new)** The optical attenuator according to claim 18, wherein the cavity in which the moveable waveguide is received has a shape and a size substantially same as those of the moveable waveguide.

20. **(new)** The optical attenuator according to claim 19, wherein the actuator is a microelectromechanical system (MEMS) actuator.

21. **(new)** The optical attenuator according to claim 20, wherein the MEMS actuator is a comb type actuator.

22. **(new)** The optical attenuator according to claim 15, wherein the bonding medium layer is formed of a solidified liquid polymer.

23. **(new)** The optical attenuator according to claim 15, wherein the bonding medium layer is formed of a polymer permitting covalent bonds between silicon atoms and oxygen atoms.

24. **(new)** The optical attenuator according to claim 17, wherein the support layer is

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made of glass, the second side of the bonding medium layer including oxidized PDMS directly bonded to said glass.

25. **(new)** The optical attenuator according to claim 24, wherein the cavity in which the moveable waveguide is received has a shape and a size substantially same as those of the moveable waveguide.

26. **(new)** The optical attenuator according to claim 24, wherein the actuator is a comb type, microelectromechanical system (MEMS) actuator.

27. **(new)** The optical attenuator according to claim 15, further comprising two fixed waveguides optically connectable to the first and second optical signal transmission lines, respectively;

the moveable waveguide being moveably disposed between said fixed waveguide parts for attenuating the optical signal being transmitted from the first optical signal transmission line to the second optical signal transmission line via said fixed and moveable waveguides.